



## 2012 International Fire Code Significant Changes

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*Expertly Engineering Safety From Fire*

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## IFC Background

- International Fire Code (IFC)
- Part of the I-Codes Series
  - Building (IBC)
  - Mechanical (IMC)
  - Plumbing (IPC)
  - Energy (IECC)
  - Existing Buildings (IEBC)



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## Purpose

- To establish the minimum requirements regarding life safety and property protection
- To provide safety to fire fighters and emergency responders
- Reference document
- The go-to guide for fire safety



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## Scope

- The hazard of fire and explosion
- Conditions hazardous to life and property
- Fire hazards based on occupancy type or operation
- Fire protection systems
- Building or processes affecting emergency responders



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## Adoption/Enforcement

- Locality can choose to adopt and amend the IBC
- Section 101.1 includes language specifically for the local jurisdiction to insert its name into the document
- Locality can adopt/amend in whole or in part
  - Responsibility to know and comply [§109.2]
    - Owner
    - Owner's Rep
    - Occupant
    - Designer



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## Organization

- Part I – Administrative
- Part II – General Safety
- Part III – Building & Equipment
- Part IV – Special Occupancies
- Part V – Hazardous Materials
- Part VI – Referenced Standards
- Part VII - Appendices



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## Part I - Administration

- Scope
  - Does it apply to your issue?
  - Can it be enforced for your issue?



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## Part I – Administration

- Is it adopted locally?
- <http://www.baltimorecity.gov/>
  - Building, Fire and Related Codes of Baltimore City
  - IFC 2012 is listed in the Introductory Note with various other I-Codes



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## §202 Definitions

- Those listed are specific to the IFC
- Seemingly minor issues matter in terms of how something is defined in the IFC
- Definitions not listed?
  - If defined in other I-Codes, use that
  - Merriam Webster's Collegiate Dictionary, 11<sup>th</sup> Edition



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### §316.4 Roof Obstructions

- Roofs with slopes <30 degrees
- Minimum 7 ft above surface  
OR
- Protect with 2-in. plastic pipe or fence



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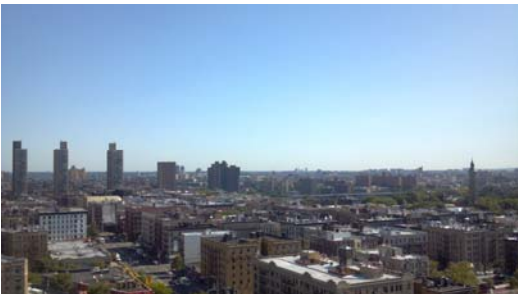
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### Roof Obstructions



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### §317 – Roof Gardens and Landscaped Roofs

- Must be installed and maintained in accordance with the IBC and §1505 and §1507.16 of the IBC
- Maximum sizes
  - 15,625 sq ft (1,450 sq m)
  - 125 ft (39 m)
  - Class A rated roof covering minimum 6 ft (1.8 m) wide between adjacent gardens and as border around equipment
- Maintenance Plan

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## Roof Gardens and Landscaped Roofs



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## §506.1, §607.5 Elevator Service Keys

- Elevator keys must be standardized – uniform throughout jurisdiction, unless...
- Non-standardized fire service elevator keys
  - Box must be compatible with existing system used by FD
  - Mounted in the lobby at the lowest level of FD access; permitted to be at fire command center if approved by FD
  - ONLY for keys, unless specifically approved by FD for tools
- New requirements for Knox Boxes to comply with UL 1037, *The Standard of Safety for Antitheft Alarms and Devices*

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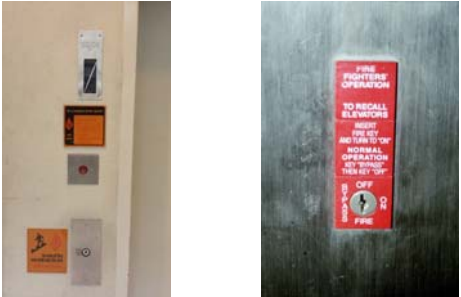
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## Elevator Service Keys



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## §508.1.5 Fire Command Center

- Additional documentation required (new #13)
  - General building
  - Building emergency contact
  - Exit stair details
  - Building services and systems
  - Fire protection systems
  - Hazardous materials



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## §510.1 Emergency Responder Radio Coverage



- All new buildings shall have *radio coverage*
- Exception where a wired communication system is approved by the fire code official



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## §604.5 Emergency Lighting



- Monthly 30-second activation test
- Annual 90-minute power test
- Records must be kept on site



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## §605.11 Solar Power

- Solar photovoltaic power systems on building roofs must now be installed per the IFC, IBC, and NFPA 70
- Requirements
  - Marking of all equipment
  - Equipment location
  - Access
  - Wiring
  - Maximum area



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## §610 Cooking Oil Storage

- Recent practice to store and reuse oils
- Class IIIB combustible liquid
- Must use Listed tanks – UL 142 & UL 80
  - Steel
  - Welded liquid-tight
  - Spill control
  - Venting



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## §803.5.2 Newly Introduced Textile Wall & Ceiling Coverings

- *Newly introduced*
- Textile or Expanded Vinyl wall and ceiling coverings
  - Class A flame spread when tested per ASTM E84 or UL 723
  - Must meet §803.5.1.2 when tested per NFPA 265
  - Must meet §803.1.2.1 when tested per NFPA 286



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### §903.2.11.1.3 Basement Sprinkler Protection

- Basement modifications could require the addition of sprinkler system(s)
  - Walls, partitions, or general obstruction preventing a hose stream from reaching the hazard
  - Any portion greater than 75 ft from required exterior openings



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### §904.1.1, §906.3 Certification of Service Personnel



- Service personnel must be certified by AHJ or other approved organization
  - Fire extinguishers
  - Automatic extinguishing systems (other than automatic sprinkler systems)

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### §907.4.1 Fire Alarm Control Unit

- Fire alarm control panels must be protected via smoke detection at panel
  - FACP
  - NAC Panels
  - Supervising Station transmitting equipment
- Heat detection permitted
- *Sprinkler exception deleted*



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## §908.7 Carbon Monoxide Alarms

- Required in Group I or R occupancies
  - New and existing if provided with fuel-burning appliances or attached garages
  - Few exceptions
- Compliance with:
  - NFPA 720
  - UL 2034
- Single station versus systems





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## §1004.1.2 & Table 1004.1.2 Occupant Load Factor

- Exhibit Galleries and Museums now separated from general assembly
- Clarification as to *function* of space rather than overall Use Group or Occupancy
- Assembly gaming floors:
  - 11 gross
- Museums:
  - 30 net
- Malls:
  - Refer to Section 402.4.1



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## §1005.3 Egress Capacity Factor

- Stairways
  - 0.3 inches per person
  - Exception allows reduction to 0.2 in./person if:
    - Automatic sprinklers provided
    - Fire alarm with voice evacuation
- Level, Ramps, etc.
  - 0.2 inches per person
  - Exception allows reduction to 0.15 in./person if:
    - Automatic sprinklers provided
    - Fire alarm with voice evacuation



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## §1008.1.2 Door Swing

- Doors... serving a room or area containing an occupant load of 50 or more...



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## Door Swing



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## §1009 Stairways

- Clarification of terms for consistency – see §202 for definitions
- Exit stairways are required to be enclosed per §1009.2.2
- Exit access stairways are permitted to be open per §1009.3



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## Stairways



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## §1022.5 Membrane Penetrations of Interior Exit Stairways

- Membrane (single surface) penetrations now permitted where properly sealed
- Through-penetrations are still prohibited, except for specific equipment serving stairway
  - Sprinkler
  - Fire alarm



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## §1101 Existing Buildings

- Intent – provide *minimum requirements* for fire and life safety to occupants in existing buildings
- Clarifications in wording to align with IEBC and Chapter 34 of the IBC
- No longer requires a life safety evaluation for existing buildings to comply with Chapter 11

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### §1104.16.5.1 Fire Escape



- Existing are permitted to remain
- Examination by registered design professional or others acceptable to the AHJ required every five years
  - Structural adequacy
  - General safety



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### Fire Escape – Acceptable?





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### Fire Escape – Acceptable?





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## Hazardous Materials

- Chapters 50 through 67 (68-79 reserved)
  - Storage
  - Handling
  - Use
  - Dispensing
- Physical or health hazards are addressed in the IFC
- Combustible dusts added in this revision cycle



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## Hazardous Materials Storage





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## §202, Table 5003.1 Combustible Dusts

<ul style="list-style-type: none"><li>□ Combustible dusts are regulated where they are<ul style="list-style-type: none"><li>□ Manufactured</li><li>□ Generated</li><li>□ Used</li></ul></li><li>□ Relative to concentration and conditions as regulated in IBC §414.1.3</li></ul>	<ul style="list-style-type: none"><li>□ Maximum Allowable Quantity (MAQ) per Control Area<ul style="list-style-type: none"><li>□ Limits for materials in storage and in use</li><li>□ Per Control Area</li><li>□ Group H-2 if MAQ is exceeded</li></ul></li></ul>
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### Combustible Dusts



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### Combustible Dusts



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### Combustible Dusts



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## §5705.5 Alcohol-Based Hand Rubs (ABHR)

- Now permitted to be 95% (formerly limited to 70%) by volume ethanol or isopropanol
- Class I or Class II liquid
- Mounting regulations
- Aggregate storage limits





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# Questions?

# Thank You

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